

**South Dakota School of Mines and
Technology**
Rapid City, SD

Geological Engineer
Bachelor of Science, December 2003

**NASA Academy Research Project:
Stimulated Infrared Emission from Rocks
during Deformation**

Principal Investigator: Dr. Friedemann Freund



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Education and Experience:

I grew up in the Black Hills of South Dakota with a great love for the outdoors, hunting for the various rocks and minerals that are present in the plains and mountains of the area. Combined with a strong desire to understand the fundamental processes that drive the universe, I entered the South Dakota School of Mines & Technology pursuing a degree in Geological Engineering. As a senior, my undergraduate experience has included participation in multiple research projects, two fellowships, winning a research grant, two NASA internships at the University of Minnesota and Johnson Space Center, and most recently, a full scholarship for my last year at the School of Mines.

My professional interests include recognizing and organizing potential innovative multidisciplinary project-based research opportunities. I want to develop interesting ideas that have a broad impact on the world, and beyond! For these reasons, and a great interest in space exploration and space science, I have pursued a career at NASA and this summer with the NASA Academy.

Extracurricular Activities:

The activities generally considered extracurricular by most folks, spending time outdoors, climbing, caving, etc., are a critical part of my degree. I enjoy all these on a regular basis, even if they are an important part of my education! I am active in the Society of Economic Geologists, Association of Engineering Geologists, and the local chapter of the National Speleological Society. I someday hope to travel to Antarctica with the NSF funded Antarctic Search for Meteorites (ANSMET).

My other truly extracurricular activities include participating in the KC-135 Reduced Gravity Student Flight Opportunities Program (RGSFOP), where I had the opportunity to fly in microgravity aboard the “Weightless Wonder.” As team leader, I have written proposals and helped build several experiments that test solar sail propulsion and deployment for future application to space flight. The most exciting set of experiments will fly the summer of 2003 with five universities coordinating resources to fly two experiments. The results from each experiment will be independently important, but taken together, will provide significantly more information on future solar sail deployment using node-bonded carbon fiber microtruss and ultra-thin mylar membranes.

I am also committed to giving back to the community that made opportunities available to me. I am working as a mentor for three local FIRST high school robotics programs through the SD Space Grant. I regularly give scientific presentations, science fair advice, and public speaking advice to K-12 students in the area. I am actively working to promote undergraduate research at the School of Mines and other universities in South Dakota. My goal is to help drive students to success.